Before the
Federal Communications Commission
Washington D.C. 20554

In the Matter of	)	
	)	
Amendment of the Commission's Rules	)	WT Docket No. 95-56
Concerning Low Power Radio and	)	
Automated Maritime Telecommunications	)	RM-7784
Systems Operating in the 216-217 MHz	)	
Band	)	

To: Secretary
Federal Communications Commission
1919 M. Street
Washington D.C. 20554

PETITION FOR RE-CONSIDERATION

Fred Daniel d.b.a. Orion Telcom (Orion) respectfully files this Petition for Reconsideration with regard to the Amendment of the Commission's Rules Concerning Low Power Radio and Automated Marine Telecommunications Systems Operations in the 216-217 MHz Bands.

Orion recognizes that the Commission decision to implement LPRS by rule. without the necessity of filing licenses, is both cost effective and supportive of the other proposed service provider categories to be included in the LPRS. Certainly the non-AMTS users of this LPRS service have indicated that the current 100 milliwatt ERP limitation is acceptable to them. Orion must take issue with the extension of this power limitation to AMTS network control applications, as our proposed use is significantly different to those proposed by other LPRS users and no AMTS provider indicated that a power output lower than the 1 watt proposed by the Commission would be acceptable to support network control applications.

The original *Notice of Proposed Rule Making (Notice)* proposed a Low Power Radio Service, which included the use of the higher channels (those above 216.750) in the 216-217 MHz band, by AMTS licensees for network control at 1

watt power output. Two AMTS licensees, Orion and Waterway Communications Inc. (Watercom), filed comments in respect to the *Notice,* supporting the proposed rule making, although no specific advocacy of the 1 watt power limitation, as proposed by the Commission, was made by any AMTS Commenter or Reply Commenter. Orion had assumed, that as the Commission had itself nominated this proposed power output of 1 watt, that there was no specific requirement for Commenters to express consensus with the Commission's position, believing this would be the output power level that would be adopted in any Report and Order. Orion believe that a 1 watt limit is both reasonable and warranted for unlicensed AMTS network control applications.

Orion considers a 1 watt limitation to be the absolute lowest practical power output to support a feasible network control solution for AMTS systems. Given that AMTS stations are between 30-50 miles apart, and that 216-217 frequencies in question could be used between adjacent sites for control purposes, the currently adopted 100 milliwatt ERP power limitation would not allow for sufficient engineering "headroom" or fade margin to facilitate a universally workable solution. The following system description and formulation may give some further insight into our concern.

Starting ERP (100 mw)	+20 dBm
Less Free Space Path Loss (50 Miles)	-120 dB
Less Urban Noise Factor	-6 dB
Usable Fade Margin ➡ ➡ ➡ ➡	**-1 dB**
Receiver Sensitivity BER $1x10^{-6}$	-107 dBm

Therefore, Orion contends that the topic of potential interference and its mitigation, which is central to any consideration of permissible power output, can be observed from two perspectives, AMTS operators and broadcasters. Orion can only speak authoritatively concerning its perspective on these matters and draw certain conclusions regarding the broadcaster's perspective based on Comments and Reply Comments placed on the record as part of these proceedings.

AMTS Perspective - Orion's perspective is indicative of our industry. Our experience has conclusively demonstrated that services operating adjacent to television channels can effectively co-exist without causing harmful interference. This is not supposition, this is fact, as no record of any complaints is available to demonstrate otherwise.

Orion is currently operating a 'maximum power'[A] system at Santiago Peak some 47 miles from the channel 13 transmitter location at Mt. Wilson, near Los Angeles. On the basis of the Eckert Report[B] , which predicated its recommendation on tests performed by Middlekamp and Davis[C] , this would mean that there would be a more than reasonable possibility of potential interference that could affect approximately 3900 square miles of service area, containing more than 9,000,000 inhabitants. Our own test have shown that our facilities at Santiago may create a potential for interference in an area less than 1/4 mile surrounding the AMTS transmitter, under the worst of circumstances. There are no residences or inhabitants within this 1/4 mile radius of Orion's facilities at Santiago peak. The vast difference between the predictions, based in the Eckert Report and our own empirical findings, can only be attributed to significantly improved television receiver performance.

The tests conducted by Middlekamp and Davis during or before 1975, as referenced in the Eckert Report, were conducted on a very limited sample of televisions sets. The five sets tested were meant to represent five different designs of tube type or tube/transistor hybrid designs, in use at the time.

The results of Middlekamp and Davis' testing, noted in Appendices A-2 and A-3[D] of the Eckert Report clearly show that:

1. There is a significant disparity between the interference susceptibility of the five sets tested: and
2. If any of the five sets tested were to be used on a "current" cable TV system, where typically all channels (2-13) are simultaneously in use, then in all likelihood all five of the tested receivers would clearly display interference, not due to AMTS operations, but from the adjacent TV channel.

Orion's direct operational experience has indicated that the performance of TV sets today is significantly better than in 1975, with respect to television interference susceptibility. More particularly with reference to this Petition for Reconsideration, the Eckert Report itself, in Table 1, concedes that frequencies from 216.500-217.000 MHz afford an additional 13dB reduction in interference susceptibility. This is in excess of the 10dB required to justify the increase in power from 100 mw ERP to 1 watt ERP, notwithstanding the significantly improved television receiver specifications of television receivers produced today, as compared to 1975.

[A] Power at 50 watts output per channel.

[B] R. Eckert FCC/OST TM82-5 Guidance for Evaluating The Potential For Interference to TV from Stations of Inland Waterway Communications Systems

[C] L. Middlekamp, H. Davis, Interference to TV Channels 11 and 13 From Transmitters Operating at 216-225 MHz, FCC Lab Division Report, Project No. 2229-71, Oct. 1975.

[D] See Attached exhibits A-2 and A-3

Additional evidence of successful system operation immediately adjacent to television bands can be drawn from widespread and long-standing use of the 72-76 MHz spectrum. This band falls directly between television channels 4 and 5 and allows for the use of high power fixed stations immediately up to the band edge of both channels 4 and 5. Power output limitations on these stations vary between services. In Part 80 no guidance is given regarding power output at all. In Parts 22 and 90 power output for fixed stations varies from 25 to 300 watts. Typical installations run between 25 and 50 watts.

Orion's own investigation has shown few, if any instances of television receiver interference. Orion interviewed a number of FCC Engineers and found that reported interference is so rare, that no records are kept. Mr. James Zoulek, the Engineer in Charge for Southern California, stated that in his 28 years with the Commission he can only recall two television interference complaints. One dealt with a Sony manufactured television set, which was found to be faulty in design. The second turned out to be an FAA glide slope system causing interference. Neither complaint resulted from commercial operations in the 72-76 MHz band.

Based on the above showing and the conditions of grant, with respect to interference mitigation and rectification inherent in any AMTS license according to CFR 47 Section 80.215(h), Orion believe there is ample grounds for the Commission to reconsider its position with regard to the power limitation for AMTS network control stations.

Orion's provision of AMTS services has, and always will, be based on delivering quality telecommunications services, which serve the public interest, within the confines of the rules and regulations in force at the time.

In conclusion, Orion would ask the Commission to consider the following:

1. Orion has successfully constructed and implemented AMTS operations within the Grade B contours of channel 13 and channel 10 stations without a single reported case of interference

2. AMTS network control operations would installed in fixed and easily identifiable locations, as opposed to itinerant applications as would be the case with other users of the LPRS service, facilitating any remedial action that may be required to mitigate possible interference to channel 10 and 13 television reception.

3. Orion know of no official complaint against either PSI or Watercom, the other two AMTS providers in the USA, with regard to interference to television operations.

4. The Commission itself opined that "Historically, AMTS licensees have demonstrated that properly designed AMTS facilities can co-exist with television broadcast operations without harmful interference". In a previous

Memorandum Opinion and Order[E] the Commission stated that "in the past there have been few if any, interference complaints".

5. The Commission own study[F] , albeit flawed with respect to current television receiver standards, finds that there is an additional reduction of interference susceptibility of 13 dB at frequencies between 216.750 and 217.000 MHz, compared to frequencies lower in the 216-217 MHz band.

6. Finally, the Commission itself quite properly notes that the Rules are succinct and specific in defining that the ultimate responsibility lies with AMTS licensees, when it comes to the mitigation and eradication of harmful interference. Orion have agreed to those regulations, and will perform accordingly, as a condition of their license grant.

For the reasons stated above, Orion respectfully request that the Commission accept this Petition for Reconsideration and amend its Report and Order on the establishment of a Low Power Radio Service, to allow the use by rule, of frequencies between 216.750 and 217.000 MHz for AMTS network control applications at 1 watt ERP.

Respectfully submitted,

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Fred Daniel

August 19, 1996

Enclosures : Appendix A-2
Appendix A-3

[E] In Re Applications of Fred Daniel d.b.a. Orion Telecom and Paging Systems Inc. For Authority to Construct New Automated Maritime Telecommunications Systems at Miami, Florida; New Bern North Carolina; Suffolk, Virginia; Baltimore, Maryland; Newark, New Jersey; New York, New York; Oak Hill, Florida; Rehoboth, Massachusetts; Spaulding, Florida; and Raymond, Maine. Memorandum Opinion and Order (May 10, 1996)

[F] R. Eckert FCC/OST TM82-5 Guidance for Evaluating The Potential For Interference to TV from Stations of Inland Waterway Communications Systems

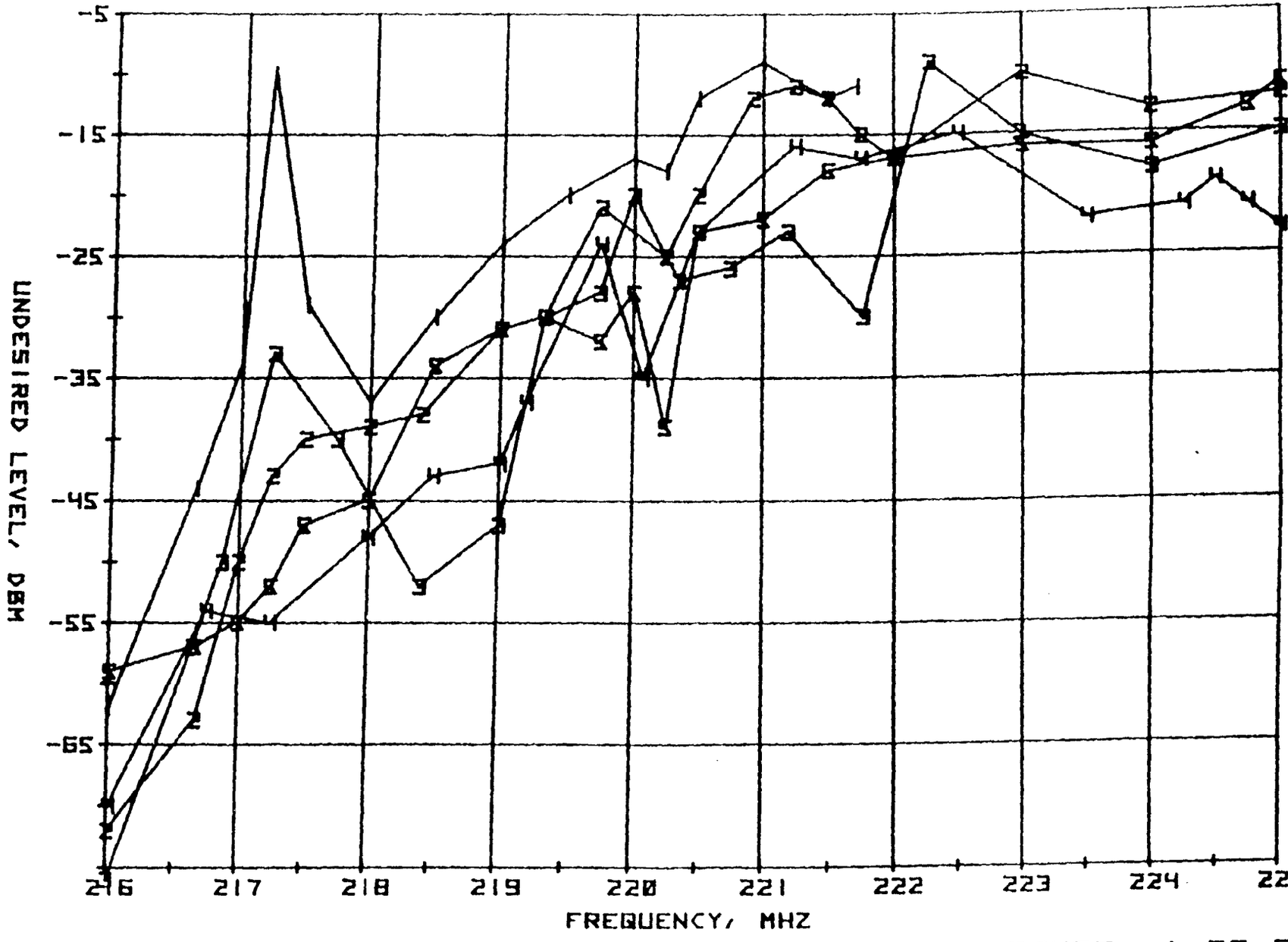

FIG. 8: FM INTERFERENCE SUSCEPTIBILITY, RCVRS. 1 TO 5, CH.13 AT -65 DBM

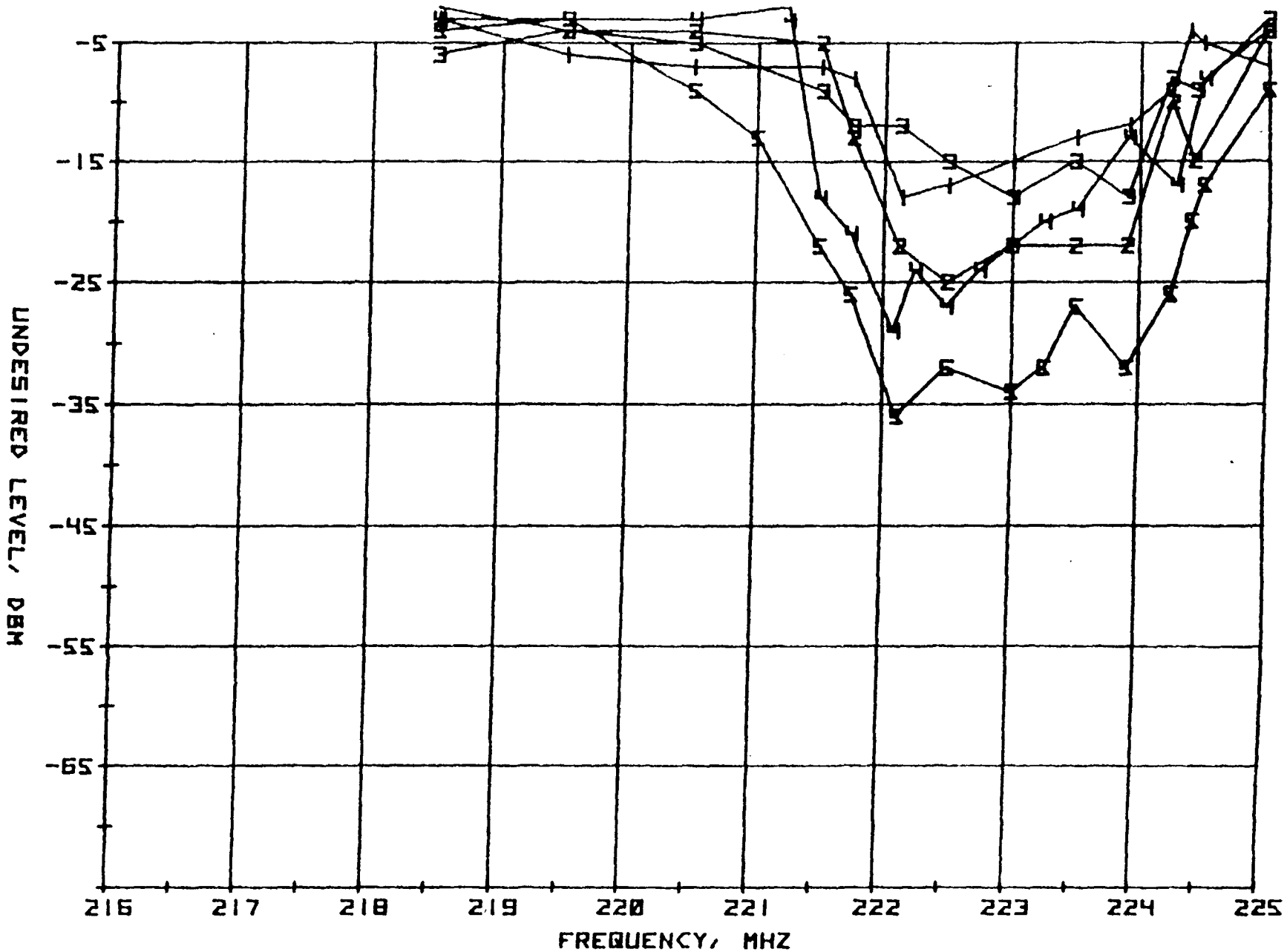

FIG.29: FM INTERFERENCE SUSCEPTIBILITY, RCVRS. 1 TO 5, CH.11 AT -65 DBM WITH 'EQUAL' LEVEL CH.13